MONTGOMERY WATSON

March 16, 2000

Mr. Kevin Adler
Remedial Project Manager
U.S. Environmental Protection Agency
Region V, SR-6J
77 West Jackson Boulevard
Chicago, IL 60604-3590

Re: Groundwater Treatment System
Quarterly Monitoring Report – Fourth Quarter 1999
ACS NPL Site

Dear Mr. Adler:

Please find enclosed two copies of the Groundwater Treatment System, Quarterly Monitoring Report, Fourth Quarter 1999 for the American Chemical Service NPL Site in Griffith, Indiana. This report is submitted in accordance with the PGCS Performance Standard Verification Plan, April 1997.

We are also sending two copies of this report to IDEM and two copies of this report to Black & Veatch Waste Systems. If you need additional copies of this report please let me know and we can forward them to you, or whomever you specify.

Sincerely,

Peter J. Vagt, Ph.D., CPG
Project Manager

cc: S. Grady (2 copies of each report)
S. Mrkvicka, B&V (2 copies of each report)
ACS Technical Committee (1 copy of each report to each member)

RAA
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1252042.251801

27755 Diehl Road
Suite 300
Warrenville, Illinois
60555

Tel. 630 836 8900
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GROUNDWATER TREATMENT SYSTEM
QUARTERLY MONITORING REPORT
FOURTH QUARTER 1999

AMERICAN CHEMICAL SERVICE NPL SITE
GRIFFITH, INDIANA

Montgomery Watson File No. 1252057

Prepared For:

RD/RA Executive Committee
American Chemical Service NPL Site

Prepared By:

Montgomery Watson
27755 Diehl Road, Suite 300
Warrenville, Illinois 60555

March 2000

MONTGOMERY WATSON

GROUNDWATER TREATMENT SYSTEM

QUARTERLY MONITORING REPORT
FOURTH QUARTER 1999

AMERICAN CHEMICAL SERVICE NPL SITE
GRIFFITH, INDIANA

Prepared For:

RD/RA Executive Committee
American Chemical Service NPL Site
Griffith, Indiana

Prepared by: _____ 3/16/00

Robert A. Adams, EIT
Project Engineer

Date

Approved by: _____ 3/16/00

Thomas A. Blair, P.E.
Project Manager

Date

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1.0 INTRODUCTION

The on-site groundwater treatment system was started at the American Chemical Service NPL Site (ACS Site) in Griffith, Indiana on March 13, 1997. The system has been operated continuously except for temporary maintenance periods since that time. The system was designed to treat groundwater from the perimeter groundwater containment system (PGCS) and certain volumes of water from the Barrier Wall Extraction System (BWES). The treatment consists of a phase-separator for oil and free product removal, equalization tanks, a UV-oxidation unit for destruction of organic constituents, an air stripper to remove methylene chloride and other organics, a chemical precipitation and clarification unit to remove metals, a sand filter to remove suspended solids, and activated carbon vessels for final polishing of the treated groundwater. The treated effluent from the treatment system is discharged to the nearby wetlands, west of the treatment system, in accordance with Agency approvals.

The 22,000-gallon storage tank (fract tank) used during the full-scale pilot study conducted at the treatment plant from the end of July to the middle of November 1998 continued to be used for additional volatile organic compound (VOC) reduction during this reporting period. Several other components from the full-scale pilot study were removed in November 1998. The results of the full-scale pilot study were used to design upgrades to the existing groundwater treatment plant. The groundwater treatment plant is being upgraded to handle the higher levels of organic contamination that are expected to be treated when the dewatering process is initiated inside the barrier wall. These upgrades, currently under construction, will include phase-separation of free-organic product and oil and grease, aerated equalization of collected groundwater, and activated sludge treatment to reduce the biological oxygen demand (BOD_5) and chemical oxygen demand (COD) in the collected groundwater.

This Groundwater Treatment System report summarizes effluent analytical data and water level gauging data collected from October 1999 through December 1999.

2.0 COMPLIANCE MONITORING

Effluent samples were collected each month from the treatment system to demonstrate compliance with the discharge limits (Table 2.1) established by Indiana Department of Environmental Management (IDEM) and United States Environmental Protection Agency (U.S. EPA). To be conservative, the sampling frequency for the effluent samples is currently in exceedence of the requirements contained in the Agency-approved Performance Standard Verification Plan (PSVP) and is presented in Table 2.2. During the previous reporting periods, the effluent compliance samples were collected on a monthly basis. The samples will continue to be collected on a monthly basis until the treatment system has stabilized after completion and startup of the groundwater treatment plant upgrades.

Sampling and analyses were performed in accordance with the Agency-approved PSVP and Quality Assurance Project Plan (QAPP) prepared by Montgomery Watson for the ACS RD/RA Executive Committee in April 1997. Quality control measures were also instituted in accordance with the PSVP QAPP. The following paragraphs present details on sampling and analyses, and also summarize the analytical data for the treatment system effluent.

2.1 SAMPLING AND ANALYSES

Effluent samples are collected on a monthly basis. For this reporting period, the samples were collected on the following days:

Monitoring Period	Sample Date
Month 29	10/6/99
Month 30	11/3/99
Month 31	12/1/99

Effluent samples were collected directly from a sample tap on the effluent line just before it exits the groundwater treatment system building. All effluent samples were placed in contaminant-free containers, as specified in the U.S. EPA Specifications and Guidance for Obtaining Contaminant-Free Sample Containers (U.S. EPA, 1992). Appropriate sample containers and preservatives, as specified in the QAPP, were used to collect and preserve the samples. Following sample collection, the sample containers were refrigerated at 4° C in coolers. Chain-of-Custody forms were prepared to track the transfer of samples from the treatment system to the laboratories. In accordance with the approved QAPP, samples were analyzed by the following analytical methods:

Parameter	Analytical Method
VOCs	SW-846 8260B
SVOCs	SW-846 8270C
Pentachlorophenol	SW-846 8270C and SIM
Pesticides/PCBs	EPA 608
Metals (Excluding Mercury)	SW-846 6010
General Water Quality Parameters (TSS and BOD-5)	EPA 160.2 and 405.1
Mercury	SW-846 7470
pH	EPA 150.1

2.2 ANALYTICAL RESULTS

For this monitoring period the system effluent was compliant with the discharge limits presented in Table 2.1. There were no exceedences reported for the Fourth Quarter 1999 sampling. A comparison of the analytical data collected during the monitoring period with the discharge limits is presented in Table 2.3. Detailed analytical reports are attached in Appendix A.

3.0 TREATMENT SYSTEM PROCESS MODIFICATIONS

There were no long term operational problems with the groundwater treatment system during the fourth quarter of 1999. There were not any significant modifications to the treatment system. The only change from historic operating conditions was the continued use of the equalization/aeration tank from the full-scale activated sludge pilot study. The system has been operating in the current configuration with the equalization/aeration tank since November 1998. This configuration was discussed in the quarterly monitoring report for the First Quarter 1999.

Construction of the GWTP upgrades began in August 1999. The work performed during this monitoring period included:

a) The activated sludge plant was erected, painted, and inspected
b) Concrete foundations for the GWTP building expansion and gravity phase separator tank (T-101) and blower pad were completed
c) Construction of the concrete base for the clarifier within the activated sludge plant and the concrete landing for the access stairs of the activated sludge plant was completed
d) An inspection of the secondary containment system liner was conducted to identify areas that required additional work or repair. The additional work and repairs were completed.
e) Backfilled the secondary containment system to the required elevation
f) Continued procurement of tanks and process piping for the GWTP upgrade
g) Began installation of the GWTP influent header system
h) Began erection of the gravity phase separator tank (T-101)
i) Began erection of the building expansion for the GWTP upgrade

Additional GWTP upgrade work to be continued/completed during future monitoring periods includes:

a) Procurement of process equipment
e) Completion of the treatment plant building expansion
f) Installation of the catalytic oxidizer-scrubber unit
g) Installation of the process pumps and piping
h) Installation of the electrical and control lines and associated upgrades
i) Upgrade the programmable logic control center
j) Start-up the upgraded system after completion of the upgrades
k) Expected start-up of upgraded system in May, 2000

4.0 PGCS AND BWES GAUGING ACTIVITIES

The PGCS trench groundwater extraction wells were operated in "auto" mode continuously throughout this monitoring period. In "auto" mode, each of the PGCS extraction wells are set to turn on or off automatically based on water levels within tank T-2. This mode is used to control the flowrate through the treatment system. In accordance with the PSVP for the Site, a discussion on the effect of the PGCS and BWES on the water table near the Site is presented in each quarterly monitoring report.

This section presents a discussion on the groundwater elevation findings during the months of October through December 1999. Groundwater elevation measurements were collected throughout the Site on November 8, 1999. However, to keep track of the groundwater table inside the barrier wall, levels were collected from the BWES piezometers (P-3, P-32, P-49 and P-96) on, approximately, a bi-weekly basis. The levels from these four piezometers are shown in the following table.

	Water Table Elevation			
Date	**P-3**	**P-32**	**P-49**	**P-96**
October 7, 1999	634.97	635.02	634.18	634.69
October 15, 1999	634.87	634.92	634.98	633.39
November 12, 1999	634.27	634.32	634.88	627.09
December 3, 1999	634.37	634.32	634.88	631.49
December 10, 1999	634.77	634.92	634.08	631.19
December 24, 1999	634.77	634.82	634.88	630.99

These levels indicate that during the reporting period, the water table inside the barrier wall has been maintained at a fairly constant level (approximately 633 to 634) by continued operation of the BWES. These levels have been maintained at a constant level to minimize the amount of BWES groundwater that needs to be treated while still maintaining the water table at a low enough level to prevent overtopping of the barrier wall. The water elevations inside the barrier wall are depicted graphically on Figure 4.1. P-96 is in close proximity to BWES extraction trench EW-11, and therefore fluctuates in direct response to the operation of the pump in EW-11.

The influence of the PGCS trench on groundwater flow patterns is illustrated by Figure 4.2 (November 1999). The direction of groundwater flow was from east to west during these months. These figures indicate an inward gradient toward the PGCS.

The barrier wall was constructed to isolate the buried waste under the site and the BWES was installed to collect the water from within the barrier wall. A series of 16 piezometers was installed in eight pairs, one piezometer of each pair on either side of the barrier wall at each of the BWES trench locations, to allow measurement and tracking of water level

measurements. Groundwater elevations in these piezometers both inside and outside the barrier wall are monitored to provide water level information inside and outside the barrier wall.

Groundwater elevations at the perimeter piezometers were monitored on November 8, 1999. Figure 4.3 illustrates these groundwater elevations. Fluctuations in the gradient across the barrier wall occur due to seasonal groundwater conditions, pumping rates from the BWES, and infiltration through the Site covers. However, the groundwater elevations measured in the piezometers indicated that the elevations inside the barrier wall were all 3.26 feet to 6.48 feet higher than the elevations outside the barrier wall. These data demonstrate that the barrier wall is successfully performing the intended function of isolating and containing the groundwater from the known source areas of the Site inside the barrier wall. Water levels from the piezometers on November 8, 1999 are presented below:

Piezometer	Location[1]	Water Level	Difference[2]
P-93	Outside	627.80	6.48
P-49[3]	Inside	634.28	
P-95	Outside	627.38	5.93
P-96	Inside	633.31	
P-97	Outside	628.13	6.02
P-98	Inside	634.15	
P-99	Outside	630.02	4.85
P-100	Inside	634.87	
P-101	Outside	630.68	4.10
P-102	Inside	634.78	
P-103	Outside	Dry[4]	NA
P-104	Inside	634.78	
P-105	Outside	630.86	3.26
P-106	Inside	634.12	
P-107	Outside	629.19	4.91
P-108	Inside	634.10	

Notes:

1. Location refers inside or outside the barrier wall.
2. A positive value indicates that the water level is higher within the barrier wall. A negative value would indicate that the water level is lower within the barrier wall.
3. Piezometer P-94 was damaged and could not be measured this monitoring period. Therefore the groundwater level from piezometer P-49 was used to calculate the hydraulic gradient. Piezometer P-94 will be repaired for future monitoring events.
4. Piezometer P-103 was dry and could not be measured this monitoring period. The total depth of P-103 is 13.58 feet below the top of the well casing indicating that the groundwater at P-103 was less than 631.39 feet above mean sea level.

NA Value could not be calculated from single measurement.

It is not the intent to continuously operate with the higher groundwater levels inside the barrier wall. The groundwater levels within the barrier wall during this monitoring period were maintained at a safe level that would not over flow the barrier wall while minimizing the amount of groundwater within the barrier wall that requires collection and treatment. Upon completion of the groundwater treatment plant upgrades, the groundwater pumping rate of the BWES will be increased to lower the water table for implementation of the in-situ soil vapor extraction systems to be installed in accordance with the Final Remedy.

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Table 2.1
Groundwater Treatment System Effluent Discharge Limits
American Chemical Service NPL Site
Griffith, Indiana

Groundwater Quality Parameter	Effluent Standard (Limit)
General Water Quality Parameters	
PH	6 - 9 S.U.
BOD-5	30 mg/L
TSS	30 mg/L
Inorganics	
Arsenic	50 µg/L
Beryllium	NE
Cadmium	4.1 µg/L
Manganese	NE
Mercury	0.02 µg/L (w/DL = 0.64)
Selenium	8.2 µg/L
Thallium	NE
Zinc	411 µg/L
Volatile Organics	
Acetone	6,800 µg/L
Benzene	5 µg/L
2-Butanone	210 µg/L
Chloromethane	NE
1,4 – Dichlorobenzene	NE
1,1 – Dichloroethane	NE
1,2 – Dichloroethene – cis	70 µg/L
Ethylbenzene	34 µg/L
Methylene chloride	5 µg/L
Tetrachloroethene	5 µg/L
Trichloroethene	5 µg/L
Vinyl chloride	2 µg/L
4 – Methyl - 2 – pentanone	15 µg/L
Semi-Volatile Organics	
bis(2 – Chloroethyl) ether	9.6 µg/L
bis(2 – Ethylhexyl) phthalate	6 µg/L
Isophorone	50 µg/L
4 – Methylphenol	34 µg/L
Pentachlorophenol	1 µg/L
PCBs	
PCBs	0.00056 µg/L (w/DL = 0.1 to 0.9)

NE = No effluent limit established.
DL = Detection limit

Table 2.2
Sampling Frequency Scheme
Groundwater Treatment System
American Chemical Service NPL Site
Griffith, Indiana

Analytes	Cumulative Time From Startup[1]	Frequency[3]
Flowrate and pH	–	Continuous
BOD, TSS, SVOCs and Metals	0 to 7 days	Once per day
	8 to 30 days	Once per week
	31 to 180 days	Once per month
	181 days onward[2]	Once per quarter
VOCs	0 to 7 days	Once per day
	8 to 30 days	Once per week
	31 days onward[2]	Once per month
PCBs	0 to 7 days	Once
	8 to 30 days	Once
	31 to 180 days	Twice
	181 days onward[2]	Once per quarter
PCBs in Sediment (one location)	–	Once per year

Notes

1. Cumulative time from startup of the groundwater treatment system. Startup refers to the point at which contaminated groundwater from the extraction trench was being introduced into the treatment system. Startup occurred once the initial equipment/system testing with clean water was completed (March 13, 1997).

2. The monitoring period covered in this report is within this cumulative time division.

3. Due to the exceedences observed in the previous reporting periods, compliance samples are currently being collected on a monthly basis.

Table 2.3
Summary of Compliance Monitoring Data
Fourth Quarter 1999
American Chemical Service NPL Site
Griffith, Indiana

Event	Month 29	Month 30	Month 31	
Date	10/6/99	11/3/99	12/1/99	Effluent Limits
pH	7.8	7.9	8.2	6-9
TSS	4	ND	ND	30
BOD	13.5	3.5	24.1	30
Arsenic	ND	ND	ND	50
Beryllium	0.21 B/	0.23 B/	ND	NE
Cadmium	ND	ND	ND	4.1
Manganese	384	366	501	NE
Mercury	ND	ND	ND	0.02 (w/DL = 0.64)
Selenium	4.2 B/	ND	ND	8.2
Thallium	ND	ND	ND	NE
Zinc	ND	ND	ND	411
Benzene	ND	ND	ND	5
Acetone	340 EB/	2/JB	74 B/BJ	6,800
2-Butanone	ND	2U/UR	ND	210
Chloromethane	ND	ND	ND	NE
1,4-Dichlorobenzene	ND	NR	NR	NE
1,1-Dichloroethane	ND	ND	ND	NE
cis-1,2-Dichloroethene	ND	ND	ND	70
Ethylbenzene	ND	ND	ND	34
Methylene chloride	2	ND	2	5
Tetrachloroethene	ND	ND	ND	5
Trichloroethene	ND	ND	ND	5
Vinyl chloride	ND	1	ND	2
4-Methyl-2-pentanone	ND	ND	ND	15
bis (2-Chloroethyl) ether	ND	ND	ND	9.6
bis(2-Ethylhexyl) - phthalate	ND	ND	0.7 JB/UB	6
4 - Methylphenol	ND	ND	ND	34
Isophorone	ND	ND	ND	50
Pentachlorophenol	ND	ND	ND	1
PCBs	ND	ND	ND	0.00056 (w/DL = 0.1 to 0.9)

Notes

pH data are expressed in S.U.

TSS and BOD_5 data are expressed in mg/L

Metals, VOC, SVOC and PCB data are expressed in µg/L

ND = Not detected

NE = No effluent limit established

NR = No results reported

Suffix Definitions

_/ = Data qualifier added by laboratory

/_ = Data qualifier added by data validator

B = Compound was also detected in the blank

E = Compound exceeds the upper level of calibration range of instrument

J = Result was detected below the reporting limit and is an estimated concentration

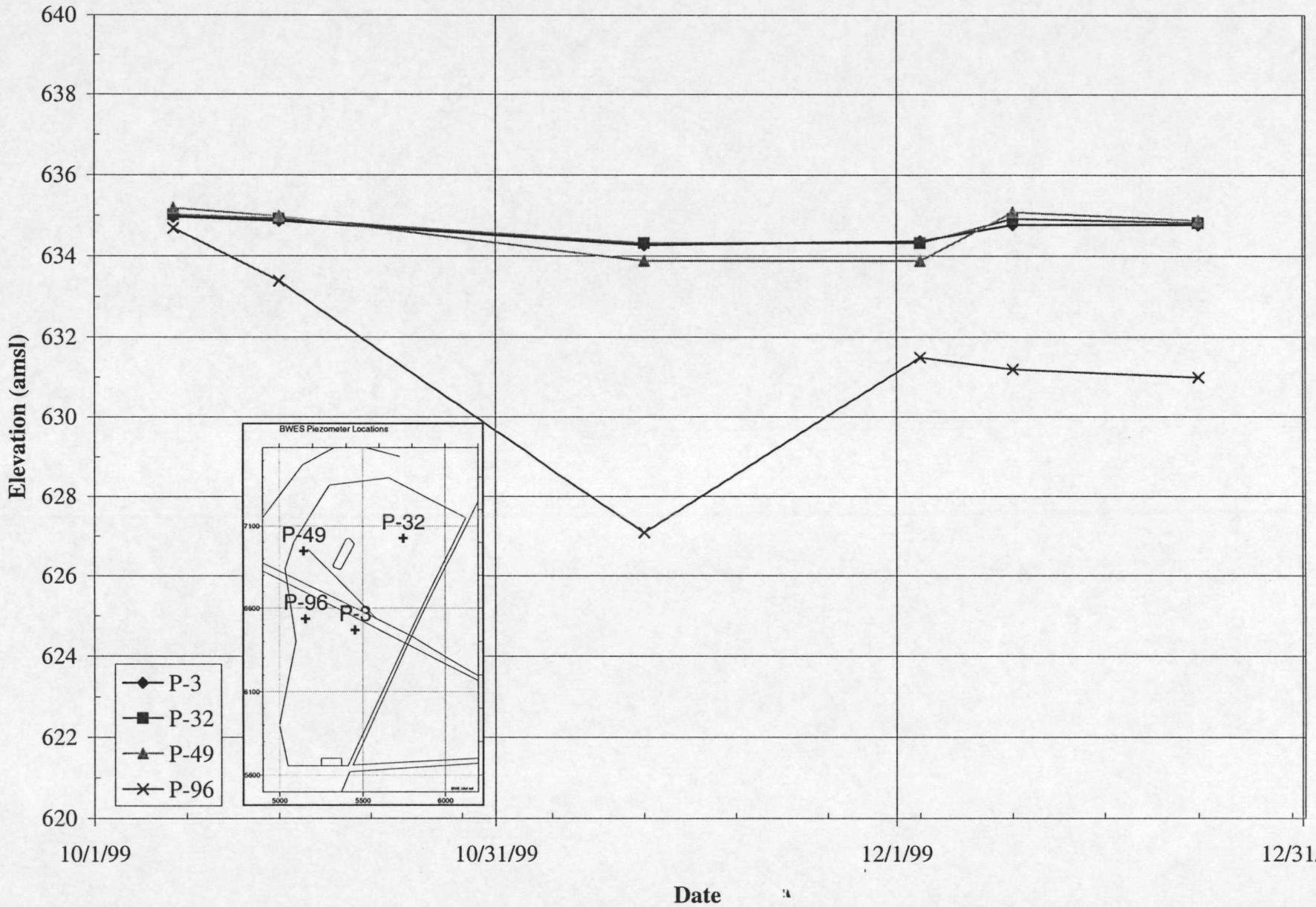
Q = Sample was analyzed out of the recommended holding time

ND = Not detected

JB = Analyte was detected in compliance sample below the reporting limit and was an estimated concentration and the compound was also detected in the method blank resulting in potential high bias

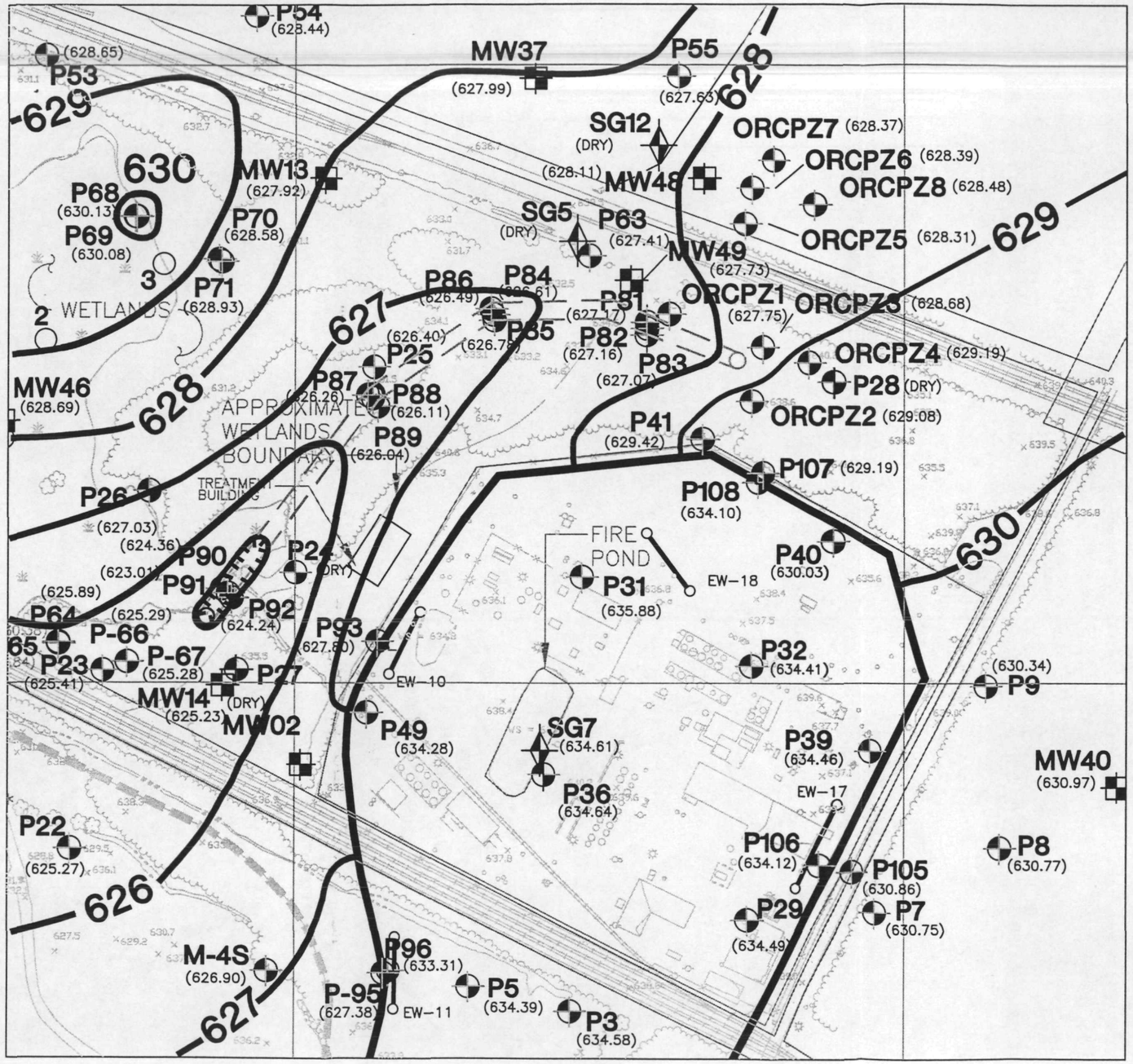
UB = Analyte was not detected at or above the indicated concentration due to blank contamination

FIGURES



RAA/JDP
J:\1252\057\271801/99_4qtr/
BWES levels 99_4qtr.xls

FIGURE 4.1
WATER LEVELS INSIDE BARRIER WALL



LEGEND

- P106 — PIEZOMETER LOCATION AND DESIGNATION
- ORCPZ7 — ORC PIEZOMETER LOCATION AND DESIGNATION
- MW48 — MONITORING WELL LOCATION AND DESIGNATION
- SG12 — STAFF GAUGE LOCATION AND DESIGNATION
- (DRY) — WELL/STAFF GAUGE WAS DRY DURING MEASURING
- (631.56) — GROUNDWATER ELEVATION
- BARRIER WALL
- GRIFFITH LANDFILL BOUNDARY
- PERIMETER GROUND WATER CONTAINMENT SYSTEM EXTRACTION TRENCH
- EW-11 — BWES EXTRACTION TRENCH LOCATION AND DESIGNATION
- 630 — GROUNDWATER ELEVATION CONTOUR BASED ON GROUNDWATER ELEVATION DATA

NOTE

1. GROUNDWATER ELEVATIONS WERE MEASURED AT THE SITE ON NOVEMBER 8, 1999

0 200 400

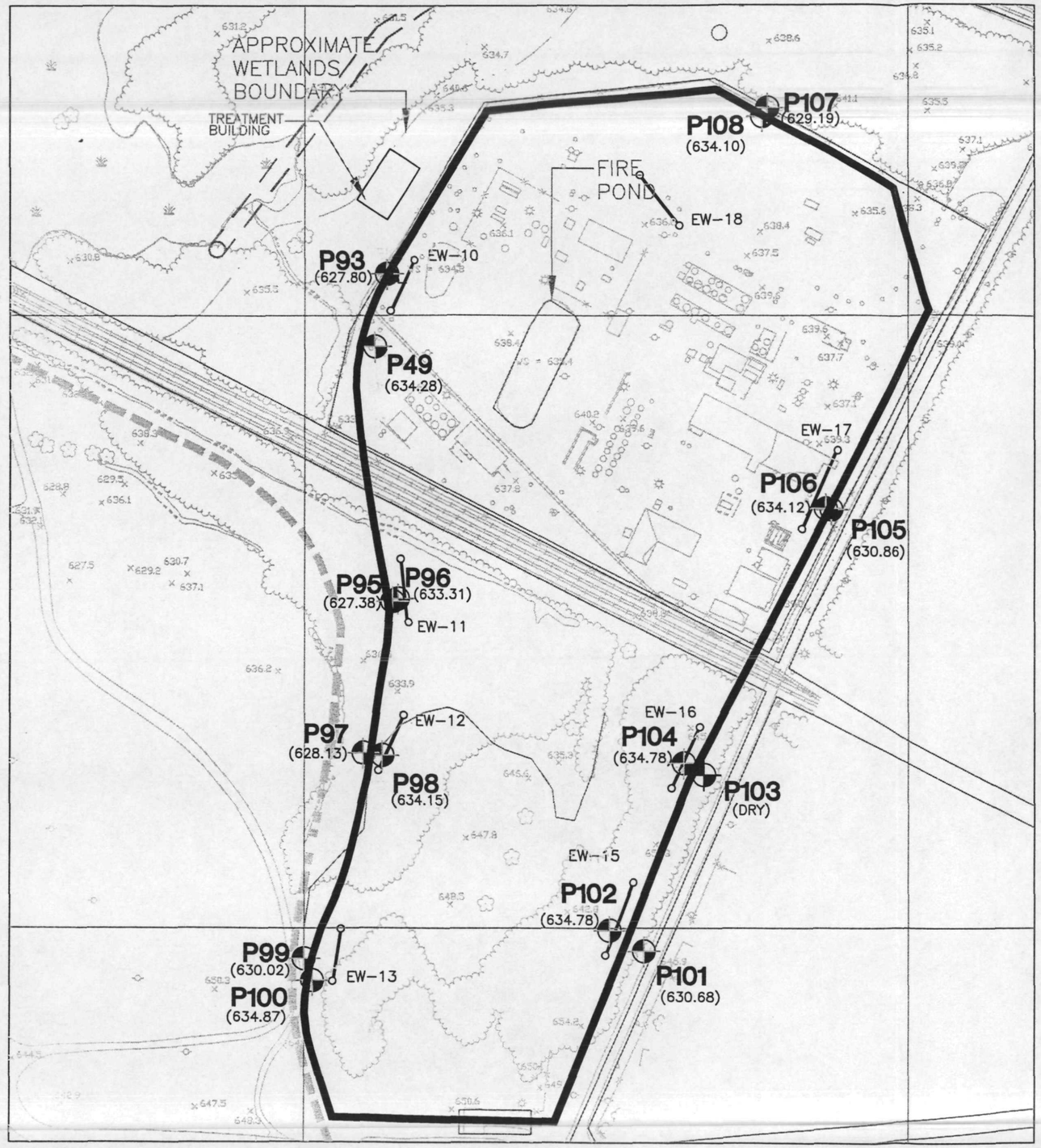
SCALE IN FEET

Plot Date:

FILE: J:/1252/057/271801/99_Attr./pgcs_1199_nov.dwg

JOB No. 1252042

SCALE				FIGURE
AS SHOWN	MONTGOMERY WATSON Chicago, Illinois	AMERICAN CHEMICAL SERVICES, INC. GROUNDWATER TREATMENT SYSTEM GRIFFITH, INDIANA	PGCS GAUGING NOVEMBER 1999	4.2



LEGEND

P106	PIEZOMETER LOCATION AND DESIGNATION
(638.12)	GROUNDWATER ELEVATION
(DRY)	PIEZOMETER WAS DRY AND COULD NOT BE MEASURED
	BARRIER WALL
	GRIFFITH LANDFILL BOUNDARY
	PERIMETER GROUND WATER CONTAINMENT SYSTEM EXTRACTION TRENCH
EW-11	BWES EXTRACTION TRENCH LOCATION AND DESIGNATION

NOTES

1. GROUNDWATER ELEVATIONS WERE MEASURED THE SITE ON NOVEMBER 8, 1999

0 200 400

SCALE IN FEET

Plot Date:
FILE: J:/1252/057/271801/99_4qrt/BWES_1199.dwg
JOB No. HW Job No.

SCALE				FIGURE
AS SHOWN	MONTGOMERY WATSON Chicago, Illinois	AMERICAN CHEMICAL SERVICES, INC. GROUNDWATER TREATMENT SYSTEM GRIFFITH, INDIANA	BWES GAUGING NOVEMBER 1999	4.3

A

TestAmerica
INCORPORATED
4310 East Anderson Road / Orlando, FL 32812 / 407-851-2560 / Fax: 407-856-0886
FL DEP CXAP # 870223G • FL DHRS DW # 83331, E83012 • NC DEM ENV # 327
NC DEHNR DW 12708 • SC DHEC # 96012 • VA DCLS DW # 00042

October 25, 1999

CLIENT: TESTAMERICA, INC
2700 GATEWAY CENTRE
SUITE 625
MORRISVILLE, NC 27560

ATTN: CAROL YANDELL

Order Number: 5
Project Name: COMPUCHEM
Sample ID: Effluent
Lab Number: 99-F10
Date Collected: 10/06/99
Time Collected: 15:00
Date Received: 10/08/99

LABORATORY REPORT

Analyte	Result	Q	Units	Report Limit	Dil Factor	Date	Time	Analyst	Method	Batch
Biological Oxygen Demand	13.5		mg/l	2.0	1	10/ 8/99	12:00	KG	405.1	1174

Approved By: K R Vault

Richard Alt, Laboratory Director
Mark Rusler, Laboratory Manager
K.R. Vault, Client Services Manager
Elizabeth A. Rich, Q.A. Officer

TOTAL SUSPENDED SOLIDS ANALYSIS

SUMMARY REPORT

ITEM NO.	SAMPLE IDENTIFIER	COMPUCHEM NUMBER	RESULT (mg/L)	REPORTING LIMIT (mg/L)
1.	EFFLUENT	960983	4	4

Reviewed by/ID#: [signature] 2008 Date: 10/20/99

PH IN WATER ANALYSIS

SUMMARY REPORT

ITEM NO.	SAMPLE IDENTIFIER	COMPUCHEM NUMBER	RESULT (Standard pH units)	REPORTING LIMIT (Standard pH units)
1.	EFFLUENT	960983	7.8	N/A

Reviewed by/ID#: [illegible] 1328 Date: 10/22/79

FORM 1

PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

EFFLUENT

Lab Name: COMPUCHEM Contract: 501244

Lab Code: COMPU Case No.: 34442 SAS No.: SDG No.: 00013

Matrix: (soil/water) WATER Lab Sample ID: 960983

Sample wt/vol: 1000 (g/mL) ML Lab File ID: _____

% Moisture: _____ decanted: (Y/N)___ Date Received: 10/07/99

Extraction: (SepF/Cont/Sonc) SEPF Date Extracted:10/11/99

Concentrated Extract Volume: 5000(uL) Date Analyzed: 10/11/99

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
12674-11-2	Aroclor-1016	0.50	U
11104-28-2	Aroclor-1221	1.0	U
11141-16-5	Aroclor-1232	0.50	U
53469-21-9	Aroclor-1242	0.50	U
12672-29-6	Aroclor-1248	0.50	U
11097-69-1	Aroclor-1254	0.50	U
11096-82-5	Aroclor-1260	0.50	U

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

EFFLUENT

Lab Name: COMPUCHEM Contract: 501244

Lab Code: COMPU Case No.: 34442 SDG No.: 00013

Matrix: (soil/water) WATER Lab Sample ID: 960983

Sample wt/vol: 1030 (g/mL) ML Lab File ID: GH060983A64

Level: (low/med) LOW Date Received: 10/07/99

% Moisture: _____ decanted: (Y/N)___ Date Extracted:10/08/99

Concentrated Extract Volume: 1000(uL) Date Analyzed: 10/12/99

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
111-44-4	Bis(2-chloroethyl)ether	9	U
106-44-5	4-Methylphenol	33	U
78-59-1	Isophorone	48	U
117-81-7	bis(2-ethylhexyl)Phthalate	6	U

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

EFFLUENT

Lab Name: COMPUCHEM Contract: SW-846

Lab Code: COMPU Case No.: 34442 SAS No.: SDG No.: 00013

Matrix (soil/water): WATER Lab Sample ID: 960983

Level (low/med): LOW Date Received: 10/07/99

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	48.6	B		P
7440-36-0	Antimony	2.3	B		P
7440-38-2	Arsenic	2.0	U		P
7440-39-3	Barium	101			P
7440-41-7	Beryllium	0.21	B		P
7440-43-9	Cadmium	0.50	U		P
7440-70-2	Calcium	98300			P
7440-47-3	Chromium	0.90	U		P
7440-48-4	Cobalt	0.60	U		P
7440-50-8	Copper	1.1	U		P
7439-89-6	Iron	540			P
7439-92-1	Lead	1.0	U		P
7439-95-4	Magnesium	14300			P
7439-96-5	Manganese	384			P
7439-97-6	Mercury	0.70	U		CV
7440-02-0	Nickel	4.4	B		P
7440-09-7	Potassium	7550			P
7782-49-2	Selenium	4.2	B		P
7440-22-4	Silver	0.30	U		P
7440-23-5	Sodium	66600			P
7440-28-0	Thallium	4.1	U		P
7440-62-2	Vanadium	0.72	B		P
7440-66-6	Zinc	1.1	U		P

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

EFFLUENT

Lab Name: COMPUCHEM Contract: 501244

Lab Code: COMPU Case No.: 34442 SAS No.: SDG No.: 00013

Matrix: (soil/water) WATER Lab Sample ID: 960983

Sample wt/vol: 25.0 (g/mL) ML Lab File ID: CN060983B56.D

Level: (low/med) LOW Date Received: 10/07/99

% Moisture: not dec. _____ Date Analyzed: 10/20/99

GC Column:EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-83-9	Bromomethane	0.5	U
75-01-4	Vinyl Chloride	0.5	U
75-00-3	Chloroethane	0.5	U
75-09-2	Methylene Chloride	2	
75-35-4	1,1-Dichloroethene	0.5	U
75-34-3	1,1-Dichloroethane	0.5	U
67-66-3	Chloroform	0.5	U
107-06-2	1,2-Dichloroethane	0.5	U
71-55-6	1,1,1-Trichloroethane	0.5	U
56-23-5	Carbon Tetrachloride	0.5	U
75-27-4	Bromodichloromethane	0.5	U
10061-01-5	cis-1,3-Dichloropropene	0.5	U
79-01-6	Trichloroethene	0.5	U
124-48-1	Dibromochloromethane	0.5	U
79-00-5	1,1,2-Trichloroethane	0.5	U
71-43-2	Benzene	0.5	U
10061-02-6	trans-1,3-Dichloropropene	0.5	U
75-25-2	Bromoform	0.5	U
127-18-4	Tetrachloroethene	0.5	U
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U
108-88-3	Toluene	0.5	U
108-90-7	Chlorobenzene	0.5	U
100-41-4	Ethylbenzene	0.5	U
100-42-5	Styrene	0.5	U
106-46-7	1,4-Dichlorobenzene	0.5	U
78-87-5	1,2-Dichloropropane	0.5	U
74-87-3	Chloromethane	0.5	U
75-15-0	Carbon disulfide	0.5	
67-64-1	Acetone	340	EB
108-10-1	4-Methyl-2-pentanone	2	U
591-78-6	2-hexanone	2	U
78-93-3	2-butanone	2	U
156-60-5	trans-1,2-Dichloroethene	0.5	U

VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO

EFFLUENT

Lab Name: COMPUCHEM Contract: 501244

Lab Code: COMPU Case No.: 34442 SAS No.: SDG No.: 00013

Matrix: (soil/water) WATER Lab Sample ID: 960983

Sample wt/vol: 25.0 (g/mL) ML Lab File ID: CN060983B56.D

Level: (low/med) LOW Date Received: 10/07/99

% Moisture: not dec. _____ Date Analyzed: 10/20/99

GC Column:EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
156-59-2	cis-1,2-Dichloroethene	0.5	U
1330-20-7	Xylene (total)	0.5	U

Data Analysis Technologies, Inc.
6385 Shier Rings Rd.
Dublin, OH 43016

Sample Analysis Certificate

Client: CompuChem

Date Sampled: 10/6/99

Client Sample ID: Effluent

Date Received: 10/8/99

Sample Volume: 1000 mls

Lab Sample ID: 1099016-1

Extract Volume: 1.0 ml

Matrix: Aqueous

Target Analyte	Result	Units	DL	Prep Date	Analysis Date
Pentachlorophenol	ND	ug/L	0.1	10/12/99	10/17/99

Surrogate:	Amount Spiked	Amount Found	Units	%Rec.
2,4,6-Tribromophenol	10	0.01	ug	0.1%

TestAmerica
INCORPORATED
4310 EAST ANDERSON ROAD / ORLANDO, FL 32812 / 407-851-2560 / FAX: 407-856-0886

November 16, 1999

CLIENT: TESTAMERICA, INC
2700 GATEWAY CENTRE
SUITE 625
MORRISVILLE, NC 27560

ATTN: CAROL YANDELL

Order Number: 406
Project: 99-0847 COMPUCHEM
Sample ID: Effluent
Lab Number: 99-F1406
Date Collected: 11/03/99
Time Collected: 14:00
Date Received: 11/05/99

LABORATORY REPORT

Analyte	Result	Q	Units	Report Limit	Dil Factor	Date	Time	Analyst	Method	Batch
"GENERAL PARAMETERS"										
Biological Oxygen Demand	3.5		mg/l	2.0	1	11/ 5/99	12:30	KG	405.1	2316

Approved By: K R Vault

Richard Alt, Laboratory Director
Mark Rusler, Laboratory Manager
K.R. Vault, Client Services Manager
Elizabeth A. Rich, Q.A. Officer

North Carolina Certification Number: E#327 /DEHNR DW12708

Data Analysis Technologies, Inc.
7715 Corporate Blvd.
Plain City Oh. 43064

Sample Analysis Certificate

Client: CompuChem

Client Sample ID: Effluent

Sample Volume: 1000 mls

Extract Volume: 10.0 ml

Date Sampled: 11/3/99

Date Received: 11/5/99

Lab Sample ID: 1199006-1

Matrix: Aqueous

Target Analyte	Result	Units	DL	Prep Date	Analysis Date
Pentachlorophenol	ND	ug/L	1.0	11/8/99	11/10/99

Surrogate:	Amount Spiked	Amount Found	Units	%Rec.
2,4,6-Tribromophenol	10	3.3	ug	33%

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EFFLUENT

Lab Name: COMPUCHEM Contract: 501244

Lab Code: LIBRTY Case No.: 34442 SAS No.: SDG No.: 00017

Matrix: (soil/water) WATER Lab Sample ID: 966013

Sample wt/vol: 1100 (g/mL) ML Lab File ID: GH066013B66

Level: (low/med) LOW Date Received: 11/04/99

% Moisture: _____ decanted: (Y/N)___ Date Extracted:11/05/99

Concentrated Extract Volume: 1000(uL) Date Analyzed: 11/06/99

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	9	U
111-44-4	Bis(2-chloroethyl)ether	9	U
95-57-8	2-Chlorophenol	9	U
541-73-1	1,3-Dichlorobenzene	9	U
106-46-7	1,4-Dichlorobenzene	9	U
95-50-1	1,2-Dichlorobenzene	9	U
95-48-7	2-Methylphenol	9	U
108-60-1	2,2'-oxybis(1-Chloropropane)	9	U
106-44-5	4-Methylphenol	9	U
621-64-7	N-Nitroso-di-N-propylamine	9	U
67-72-1	Hexachloroethane	9	U
98-95-3	Nitrobenzene	9	U
78-59-1	Isophorone	9	U
88-75-5	2-Nitrophenol	9	U
105-67-9	2,4-Dimethylphenol	9	U
111-91-1	Bis(2-chloroethoxy)methane	9	U
120-83-2	2,4-Dichlorophenol	9	U
120-82-1	1,2,4-Trichlorobenzene	9	U
91-20-3	Naphthalene	9	U
106-47-8	4-Chloroaniline	9	U
87-68-3	Hexachlorobutadiene	9	U
59-50-7	4-Chloro-3-methylphenol	9	U
91-57-6	2-Methylnaphthalene	9	U
77-47-4	Hexachlorocyclopentadiene	9	U
88-06-2	2,4,6-Trichlorophenol	9	U
95-95-4	2,4,5-Trichlorophenol	9	U
91-58-7	2-Chloronaphthalene	9	U
88-74-4	2-Nitroaniline	18	U
131-11-3	Dimethylphthalate	9	U
606-20-2	2,6-Dinitrotoluene	9	U
208-96-8	Acenaphthylene	9	U
99-09-2	3-Nitroaniline	18	U
83-32-9	Acenaphthene	9	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EFFLUENT

Lab Name: COMPUCHEM Contract: 501244

Lab Code: LIBRTY Case No.: 34442 SAS No.: SDG No.: 00017

Matrix: (soil/water) WATER Lab Sample ID: 966013

Sample wt/vol: 1100 (g/mL) ML Lab File ID: GH066013B66

Level: (low/med) LOW Date Received: 11/04/99

% Moisture: _____ decanted: (Y/N)___ Date Extracted:11/05/99

Concentrated Extract Volume: 1000(uL) Date Analyzed: 11/06/99

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
51-28-5	2,4-Dinitrophenol	18	U
100-02-7	4-Nitrophenol	18	U
121-14-2	2,4-Dinitrotoluene	9	U
132-64-9	Dibenzofuran	9	U
84-66-2	Diethylphthalate	9	U
7005-72-3	4-Chlorophenyl-phenylether	9	U
86-73-7	Fluorene	9	U
100-01-6	4-Nitroaniline	18	U
534-52-1	4,6-Dinitro-2-methylphenol	18	U
86-30-6	N-Nitrosodiphenylamine (1)	9	U
101-55-3	4-Bromophenyl-phenylether	9	U
118-74-1	Hexachlorobenzene	9	U
87-86-5	Pentachlorophenol	18	U
85-01-8	Phenanthrene	9	U
120-12-7	Anthracene	9	U
86-74-8	Carbazole	9	U
84-74-2	Di-n-butylphthalate	9	U
206-44-0	Fluoranthene	9	U
129-00-0	Pyrene	9	U
85-68-7	Butylbenzylphthalate	9	U
91-94-1	3,3'-Dichlorobenzidine	9	U
117-81-7	bis(2-ethylhexyl)Phthalate	9	U
56-55-3	Benzo(a)anthracene	9	U
218-01-9	Chrysene	9	U
117-84-0	Di-n-octylphthalate	9	U
205-99-2	Benzo(b)fluoranthene	9	U
207-08-9	Benzo(k)fluoranthene	9	U
50-32-8	Benzo(a)pyrene	9	U
193-39-5	Indeno(1,2,3-c,d)pyrene	9	U
53-70-3	Dibenzo(a,h)anthracene	0.9	J
191-24-2	Benzo(g,h,i)perylene	1	J

(1) - Cannot be separated from Diphenylamine

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EFFLUENT

Lab Name: COMPUCHEM Contract: 501244

Lab Code: LIBRTY Case No.: 34442 SAS No.: SDG No.: 00017

Matrix: (soil/water) WATER Lab Sample ID: 966013

Sample wt/vol: 1040 (g/mL) ML Lab File ID: _____

% Moisture: _____ decanted: (Y/N)___ Date Received: 11/04/99

Extraction: (SepF/Cont/Sonc) SEPF Date Extracted:11/09/99

Concentrated Extract Volume: 5000(uL) Date Analyzed: 11/18/99

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
12674-11-2	Aroclor-1016	0.48	U
11104-28-2	Aroclor-1221	0.96	U
11141-16-5	Aroclor-1232	0.48	U
53469-21-9	Aroclor-1242	0.48	U
12672-29-6	Aroclor-1248	0.48	U
11097-69-1	Aroclor-1254	0.48	U
11096-82-5	Aroclor-1260	0.48	U

PH IN WATER ANALYSIS

SUMMARY REPORT

ITEM NO.	SAMPLE IDENTIFIER	COMPUCHEM NUMBER	RESULT (Standard pH units)	REPORTING LIMIT (Standard pH units)
1.	EFFLUENT	966013	7.9	N/A

Reviewed by/ID#: R. Williams 12608 Date: 11/15/99

TOTAL SUSPENDED SOLIDS ANALYSIS

SUMMARY REPORT

ITEM NO.	SAMPLE IDENTIFIER	COMPUCHEM NUMBER	RESULT (mg/L)	REPORTING LIMIT (mg/L)
1.	EFFLUENT	966013	< 4	4

Reviewed by/ID#: A. Willard 1268 Date: 11/15/99

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

EFFLUENT

Lab Name: COMPUCHEM Contract: SW-846

Lab Code: COMPU Case No.: 34442 SAS No.: SDG No.: 00017

Matrix (soil/water): WATER Lab Sample ID: 966013

Level (low/med): LOW Date Received: 11/04/99

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	48.5	B		P
7440-36-0	Antimony	1.8	U		P
7440-38-2	Arsenic	7.6	U		P
7440-39-3	Barium	93.4			P
7440-41-7	Beryllium	0.23	B		P
7440-43-9	Cadmium	0.30	U		P
7440-70-2	Calcium	88000			P
7440-47-3	Chromium	1.5	U		P
7440-48-4	Cobalt	0.60	U		P
7440-50-8	Copper	1.2	U		P
7439-89-6	Iron	88.7	B		P
7439-92-1	Lead	1.5	U		P
7439-95-4	Magnesium	15300			P
7439-96-5	Manganese	366			P
7439-97-6	Mercury	0.70	U		CV
7440-02-0	Nickel	2.8	B		P
7440-09-7	Potassium	8410			P
7782-49-2	Selenium	3.4	U		P
7440-22-4	Silver	0.90	U		P
7440-23-5	Sodium	71700			P
7440-28-0	Thallium	2.5	U		P
7440-62-2	Vanadium	0.80	U		P
7440-66-6	Zinc	3.1	U		P

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

EFFLUENT

Lab Name: COMPUCHEM Contract: 501244

Lab Code: LIBRTY Case No.: 34442 SAS No.: SDG No.: 00017

Matrix: (soil/water) WATER Lab Sample ID: 966013

Sample wt/vol: 25.0 (g/mL) ML Lab File ID: CN066013B51.D

Level: (low/med) LOW Date Received: 11/04/99

% Moisture: not dec. _____ Date Analyzed: 11/11/99

GC Column:EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q	
74-83-9	Bromomethane	0.5	U	
75-01-4	Vinyl Chloride	0.5	U	
75-00-3	Chloroethane	0.5	U	
75-09-2	Methylene Chloride	1		
75-35-4	1,1-Dichloroethene	0.5	U	UJ
75-34-3	1,1-Dichloroethane	0.5	U	
67-66-3	Chloroform	0.5	U	
107-06-2	1,2-Dichloroethane	0.5	U	
71-55-6	1,1,1-Trichloroethane	0.5	U	
56-23-5	Carbon Tetrachloride	0.5	U	
75-27-4	Bromodichloromethane	0.5	U	
10061-01-5	cis-1,3-Dichloropropene	0.5	U	
79-01-6	Trichloroethene	0.5	U	
124-48-1	Dibromochloromethane	0.5	U	
79-00-5	1,1,2-Trichloroethane	0.5	U	
71-43-2	Benzene	0.5	U	
10061-02-6	trans-1,3-Dichloropropene	0.5	U	
75-25-2	Bromoform	0.5	U	
127-18-4	Tetrachloroethene	0.5	U	
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	
108-88-3	Toluene	0.5	U	
108-90-7	Chlorobenzene	0.5	U	
100-41-4	Ethylbenzene	0.5	U	
100-42-5	Styrene	0.5	U	
78-87-5	1,2-Dichloropropane	0.5	U	
74-87-3	Chloromethane	0.5	U	
75-15-0	Carbon disulfide	0.5	U	
67-64-1	Acetone	2		JB
108-10-1	4-Methyl-2-pentanone	2	U	
591-78-6	2-hexanone	2	U	
78-93-3	2-butanone	2	U	UR
156-60-5	trans-1,2-Dichloroethene	0.5	U	
156-59-2	cis-1,2-Dichloroethene	0.5	U	

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

EFFLUENT

Lab Name: COMPUCHEM Contract: 501244

Lab Code: LIBRTY Case No.: 34442 SAS No.: SDG No.: 00017

Matrix: (soil/water) WATER Lab Sample ID: 966013

Sample wt/vol: 25.0 (g/mL) ML Lab File ID: CN066013B51.D

Level: (low/med) LOW Date Received: 11/04/99

% Moisture: not dec. _____ Date Analyzed: 11/11/99

GC Column:EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
1330-20-7	Xylene (total)	0.5	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EFFLUENT

Lab Name: COMPUCHEM Contract: 501244

Lab Code: LIBRTY Case No.: 34442 SAS No.: SDG No.: 00021

Matrix: (soil/water) WATER Lab Sample ID: 970895

Sample wt/vol: 25.0 (g/ml) ML Lab File ID: CR070895A51

Level: (low/med) LOW Date Received: 12/02/99

% Moisture: not dec. _____ Date Analyzed: 12/14/99

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L		
74-83-9	Bromomethane	0.5	U	
75-01-4	Vinyl Chloride	0.5	U	
75-00-3	Chloroethane	0.5	U	
75-09-2	Methylene Chloride	2		
75-35-4	1,1-Dichloroethene	0.5	U	
75-34-3	1,1-Dichloroethane	0.5	U	
67-66-3	Chloroform	0.5	U	
107-06-2	1,2-Dichloroethane	0.5	U	
71-55-6	1,1,1-Trichloroethane	0.5	U	
56-23-5	Carbon Tetrachloride	0.5	U	
75-27-4	Bromodichloromethane	0.5	U	
10061-01-5	cis-1,3-Dichloropropene	0.5	U	
79-01-6	Trichloroethene	0.5	U	
124-48-1	Dibromochloromethane	0.5	U	
79-00-5	1,1,2-Trichloroethane	0.5	U	
71-43-2	Benzene	0.5	U	
10061-02-6	trans-1,3-Dichloropropene	0.5	U	
75-25-2	Bromoform	0.5	U	
127-18-4	Tetrachloroethene	0.5	U	
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	
108-88-3	Toluene	0.1	J	
108-90-7	Chlorobenzene	0.5	U	
100-41-4	Ethylbenzene	0.5	U	
100-42-5	Styrene	0.5	U	
78-87-5	1,2-Dichloropropane	0.5	U	
74-87-3	Chloromethane	0.5	U	
75-15-0	Carbon disulfide	9		
67-64-1	Acetone	74	B	BJ
108-10-1	4-Methyl-2-pentanone	2	U	
591-78-6	2-hexanone	2	U	
78-93-3	2-butanone	2	U	UR
156-60-5	trans-1,2-Dichloroethene	0.5	U	
156-59-2	cis-1,2-Dichloroethene	0.5	U	

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EFFLUENT

Lab Name: COMPUCHEM Contract: 501244

Lab Code: LIBRTY Case No.: 34442 SAS No.: SDG No.: 00021

Matrix: (soil/water) WATER Lab Sample ID: 970895

Sample wt/vol: 25.0 (g/ml) ML Lab File ID: CR070895A51

Level: (low/med) LOW Date Received: 12/02/99

% Moisture: not dec. _____ Date Analyzed: 12/14/99

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
1330-20-7	Xylene (total)	0.5	U

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

SLCSWU

Lab Name: COMPUCHEM Contract: 501244

Lab Code: LIBRTY Case No.: 34442 SAS No.: SDG No.: 00021

Matrix: (soil/water) WATER Lab Sample ID: 970941

Sample wt/vol: 1000 (g/mL) ML Lab File ID: GH070941A66

Level: (low/med) LOW Date Received:

% Moisture: _____ decanted: (Y/N)___ Date Extracted:12/03/99

Concentrated Extract Volume: 1000(uL) Date Analyzed: 12/06/99

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	38	
111-44-4	Bis(2-chloroethyl)ether	79	
95-57-8	2-Chlorophenol	69	
106-46-7	1,4-Dichlorobenzene	72	
106-44-5	4-Methylphenol	75	
621-64-7	N-Nitroso-di-N-propylamine	98	
78-59-1	Isophorone	78	
120-82-1	1,2,4-Trichlorobenzene	76	
59-50-7	4-Chloro-3-methylphenol	66	
83-32-9	Acenaphthene	81	
100-02-7	4-Nitrophenol	21	
121-14-2	2,4-Dinitrotoluene	92	
87-86-5	Pentachlorophenol	52	
129-00-0	Pyrene	72	
117-81-7	bis(2-ethylhexyl)Phthalate	77	B

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

EFFLUENT

Lab Name: COMPUCHEM Contract: 501244

Lab Code: LIBRTY Case No.: 34442 SAS No.: SDG No.: 00021

Matrix: (soil/water) WATER Lab Sample ID: 970895

Sample wt/vol: 1075 (g/mL) ML Lab File ID: GH070895A66

Level: (low/med) LOW Date Received: 12/02/99

% Moisture: _____ decanted: (Y/N)___ Date Extracted:12/03/99

Concentrated Extract Volume: 1000(uL) Date Analyzed: 12/06/99

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q	
111-44-4	Bis(2-chloroethyl)ether	9	U	
106-44-5	4-Methylphenol	9	U	
78-59-1	Isophorone	9	U	
117-81-7	bis(2-ethylhexyl)Phthalate	0.7	JB	UB

1,4-DCB

Data Analysis Technologies, Inc.
7715 Corporate Blvd.
Plain City Oh. 43064

Sample Analysis Certificate

Client: CompuChem

Client Sample ID: Effluent

Sample Volume: 1000 mls

Extract Volume: 1.0 ml

Date Sampled: 12/1/99

Date Received: 12/3/99

Lab Sample ID: 1299009-1

Matrix: Aqueous

Target Analyte	Result	Units	DL	Prep Date	Analysis Date
Pentachlorophenol	ND	ug/L	0.1	12/3/99	12/21/99

Surrogate:	Amount Spiked	Amount Found	Units	%Rec.
2,4,6-Tribromophenol	11.1	9.01	ug	81%

PH IN WATER ANALYSIS

SUMMARY REPORT

ITEM NO.	SAMPLE IDENTIFIER	COMPUCHEM NUMBER	RESULT (Standard pH units)	REPORTING LIMIT (Standard pH units)
1.	EFFLUENT	970895	8.2	N/A

Reviewed by/ID#: R Williams 12608 Date: 12/09/99

TOTAL SUSPENDED SOLIDS ANALYSIS

SUMMARY REPORT

ITEM NO.	SAMPLE IDENTIFIER	COMPUCHEM NUMBER	RESULT (mg/L)	REPORTING LIMIT (mg/L)
1.	EFFLUENT	970895	< 4	4

Reviewed by/ID#: R L Williams 12008 Date: 12/09/99

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EFFLUENT

Lab Name: COMPUCHEM Contract: 501244

Lab Code: LIBRTY Case No.: 34442 SAS No.: SDG No.: 00021

Matrix: (soil/water) WATER Lab Sample ID: 970895

Sample wt/vol: 1025 (g/mL) ML Lab File ID: _____

% Moisture: _____ decanted: (Y/N)___ Date Received: 12/02/99

Extraction: (SepF/Cont/Sonc) SEPF Date Extracted:12/03/99

Concentrated Extract Volume: 5000(uL) Date Analyzed: 12/07/99

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
12674-11-2	Aroclor-1016	0.49	U
11104-28-2	Aroclor-1221	0.98	U
11141-16-5	Aroclor-1232	0.49	U
53469-21-9	Aroclor-1242	0.49	U
12672-29-6	Aroclor-1248	0.49	U
11097-69-1	Aroclor-1254	0.49	U
11096-82-5	Aroclor-1260	0.49	U

TestAmerica
INCORPORATED
4310 EAST ANDERSON ROAD / ORLANDO, FL 32812 / 407-851-2560 / FAX: 407-856-0886

December 13, 1999

CLIENT: TESTAMERICA, INC
2701 GATEWAY CENTRE
SUITE 625
MORRISVILLE, NC 27560

ATTN: CAROL YANDELL

Order Number: 822
Project: COMPUCHEM ACS-89
Sample ID: Effluent
Lab Number: 99-F2859
Date Collected: 12/01/99
Time Collected: 14:00
Date Received: 12/03/99

LABORATORY REPORT

Analyte	Result	Q	Units	Report Limit	Dil Factor	Date	Time	Analyst	Method	Batch
GENERAL PARAMETERS										
Biological Oxygen Demand	24.1		mg/l	2.0	1	12/ 3/99	13:40	KG	405.1	3327

Approved By: K.R. Vault

Richard Alt, Laboratory Director
Mark Rusler, Laboratory Manager
K.R. Vault, Client Services Manager
Elizabeth A. Rich, Q.A. Officer

North Carolina Certification Number: 59327 /DEHNR DW12708

U.S. EPA - CLP

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

EFFLUENT

Lab Name: COMPUCHEM Contract: SW-846

Lab Code: COMPU Case No.: 34442 SAS No.: SDG No.: 00021

Matrix (soil/water): WATER Lab Sample ID: 970895

Level (low/med): LOW Date Received: 12/02/99

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	35.1	U		P
7440-36-0	Antimony	12.7			P
7440-38-2	Arsenic	7.6	U		P
7440-39-3	Barium	102			P
7440-41-7	Beryllium	0.20	U		P
7440-43-9	Cadmium	0.30	U		P
7440-70-2	Calcium	99100			P
7440-47-3	Chromium	1.5	U		P
7440-48-4	Cobalt	0.60	U		P
7440-50-8	Copper	1.2	U		P
7439-89-6	Iron	22.7	U		P
7439-92-1	Lead	1.5	U		P
7439-95-4	Magnesium	15600			P
7439-96-5	Manganese	501			P
7439-97-6	Mercury	0.64	U		CV
7440-02-0	Nickel	2.6	B		P
7440-09-7	Potassium	8710			P
7782-49-2	Selenium	3.4	U		P
7440-22-4	Silver	0.90	U		P
7440-23-5	Sodium	85000			P
7440-28-0	Thallium	2.5	U		P
7440-62-2	Vanadium	0.80	U		P
7440-66-6	Zinc	3.1	U		P

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: YELLOW Clarity After: CLEAR Artifacts:

Comments: